UNIQUE STUDY POINT

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Class: VI	**Subject:** Science	**Session:** 2025-26
Chapter: 02 - Oceans and Continents	**Time:** 1½ Hours	**Max. Marks:** 40

General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five sections A, B, C, D and E.
3. Section A contains 10 MCQs of 1 mark each.
4. Section B contains 4 questions of 2 marks each.
5. Section C contains 3 questions of 3 marks each.
6. Section D contains 1 question of 5 marks.
7. Section E contains 2 Case Study Based questions of 4 marks each.

SECTION A - Multiple Choice Questions (1 mark each)

Q1. What percentage of Earth's surface is covered by water?

(a) About half

(b) About one-fourth

(c) About three-fourths

(d) About one-fifth

Q2. Which is the largest ocean on Earth?

(a) Atlantic Ocean

(b) Indian Ocean

(c) Pacific Ocean

(d) Arctic Ocean

Q3. How many continents are there according to the most widely adopted classification?

(a) Four

(b) Five

(c) Six

(d) Seven

Q4. Which is the smallest continent?

(a) Europe

(b) Antarctica

(c) Australia

(d) South America

Q5. What is a landmass surrounded by water on all sides called?

(a) Peninsula
(b) Island
(c) Continent
(d) Archipelago

Q6. Which sea is located to the west of India?
(a) Bay of Bengal
(b) Arabian Sea
(c) Red Sea
(d) Mediterranean Sea

Q7. What is the largest island in the world?
(a) Madagascar
(b) Greenland
(c) Borneo
(d) New Guinea

Q8. Which ocean is the smallest?
(a) Southern Ocean
(b) Arctic Ocean
(c) Indian Ocean
(d) Atlantic Ocean

Q9. What natural disaster is a huge wave caused by underwater earthquakes?
(a) Cyclone
(b) Hurricane
(c) Tsunami
(d) Tornado

Q10. Which hemisphere has more landmass?
(a) Northern Hemisphere
(b) Southern Hemisphere
(c) Eastern Hemisphere
(d) Both have equal land

SECTION B - Short Answer Questions (2 marks each)

Q11. Why is Earth called the 'blue planet'?

Q12. Name the two major island groups of India and mention their locations.

Q13. What is a continent? Name the largest continent.

Q14. Differentiate between freshwater and seawater.

SECTION C - Short Answer Questions (3 marks each)

Q15. Explain how oceans affect the climate of Earth.

Q16. Why are there different counts of continents? Explain with examples.

Q17. What is the Indian Ocean Tsunami Warning System? Why is it important?

SECTION D - Long Answer Question (5 marks)

Q18. Describe the various ways in which oceans impact human life. Include both positive and negative impacts.

SECTION E - Case Study Based Questions (4 marks each)

Q19. Read the case study and answer the questions that follow:

On 26 December 2004, one of the most devastating natural disasters struck the Indian Ocean region. A powerful underwater earthquake off the coast of Indonesia triggered a massive tsunami that affected 14 countries. The tsunami waves traveled thousands of kilometers across the ocean at speeds of up to 800 km/h. When these waves reached shallow coastal waters, they grew to heights of over 30 meters in some places. In India, the Andaman and Nicobar Islands and the coastal regions of Tamil Nadu and Kerala were severely affected. More than two lakh people lost their lives across all affected countries. This disaster led to the establishment of better early warning systems in the Indian Ocean region.

(i) What caused the 2004 tsunami? (1 mark)

(ii) Which regions of India were most affected by this tsunami? (1 mark)

(iii) Why do tsunami waves become more dangerous as they approach the coast? (1 mark)

(iv) What positive outcome resulted from this disaster? (1 mark)

Q20. Read the case study and answer the questions that follow:

The Indian Antarctica Programme began in 1981 to explore one of the most extreme environments on Earth. Antarctica is the coldest continent, with temperatures dropping below -80°C in winter. It is covered almost entirely by ice, which contains about 70% of Earth's freshwater. Despite the harsh conditions, India has established three research stations there: Dakshin Gangotri (1983), Maitri (1989), and Bharati (2012). Indian scientists conduct research on climate change, atmospheric science, and glaciology. The research stations have facilities including laboratories, living quarters, a library, and even a post office. About 40 scientific expeditions have been conducted to study how Antarctica's ice and environment affect global climate patterns.

(i) When did India's Antarctica Programme begin? (1 mark)

(ii) How much of Earth's freshwater is stored in Antarctica's ice? (1 mark)

(iii) Name any two research stations established by India in Antarctica. (1 mark)

(iv) Why is studying Antarctica important for understanding global climate? (1 mark)

DETAILED ANSWER KEY - PAPER 01

SECTION A - Answers to MCQs

Answer 1: (c) About three-fourths

Most of Earth's surface is covered with water, approximately three-fourths or 71% of the total surface area, which is why Earth appears blue from space.

Answer 2: (c) Pacific Ocean

The Pacific Ocean is the largest ocean on Earth, covering more area than all the continents combined. It is followed by the Atlantic Ocean in size.

Answer 3: (d) Seven

According to the most widely adopted classification, there are seven continents: Africa, Antarctica, Asia, Australia, Europe, North America, and South America.

Answer 4: (c) Australia

Australia is the smallest continent. It is surrounded by the Pacific Ocean to the east and the Indian Ocean to the west.

Answer 5: (b) Island

A landmass that is surrounded by water on all sides is called an island. Continents are also surrounded by water but are too large to be considered islands.

Answer 6: (b) Arabian Sea

The Arabian Sea is located to the west of India. The Bay of Bengal is located to the east of India. Both are parts of the Indian Ocean.

Answer 7: (b) Greenland

Greenland is the largest island in the world. Its area is so large that you would need to combine the areas of India's 10 largest states to match it.

Answer 8: (b) Arctic Ocean

The Arctic Ocean is the smallest of all five oceans. It is located around the North Pole and is mostly covered with ice throughout the year.

Answer 9: (c) Tsunami

A tsunami is a huge destructive wave caused by underwater earthquakes or volcanic eruptions. These waves can travel thousands of kilometers and cause massive damage to coastal areas.

Answer 10: (a) Northern Hemisphere

The Northern Hemisphere has more landmass compared to the Southern Hemisphere. Most of the world's continents are located in the Northern Hemisphere.

SECTION B - Answers to Short Answer Questions

Answer 11:

Earth is called the 'blue planet' because most of its surface (about three-fourths) is covered with water. When viewed from outer space, the abundant water bodies, particularly the vast oceans, make Earth appear predominantly blue in color. Early astronauts lovingly gave Earth this name when they first saw it from space.

Answer 12:

The two major island groups of India are:

1. Andaman and Nicobar Islands - Located in the Bay of Bengal (east of India)
2. Lakshadweep Islands - Located in the Arabian Sea (west of India)

India has more than 1,300 small islands in total, and these two groups are the major ones.

Answer 13:

A continent is a large continuous expanse of land. It is one of Earth's major landmasses. Asia is the largest continent in terms of both area and population. It extends from the Arctic Ocean in the north to the Indian Ocean in the south, and includes countries like India, China, Russia, and many others.

Answer 14:

The main differences between freshwater and seawater are:

- Seawater is salty and contains high concentrations of dissolved salts and minerals, making it unfit for consumption by most land animals including humans
- Freshwater has very low salt content and is suitable for drinking and agriculture
- Seawater makes up most of Earth's water (about 97%), while freshwater is only about 3%
- Freshwater is found in glaciers, rivers, lakes, underground, and in the atmosphere

SECTION C - Answers to Short Answer Questions

Answer 15:

Oceans affect Earth's climate in several crucial ways:

1. Water Cycle: Oceans are the primary source of water vapor for the atmosphere. They send rain to continents through evaporation and cloud formation. Without oceans, there would be no rainfall and Earth would be a desert.

2. Oxygen Production: Marine flora (algae and seaweeds) produces more than half of the world's oxygen through photosynthesis. This is why oceans are called 'the planet's lungs'.

3. Climate Regulation: Oceans absorb and store heat from the sun, helping to regulate global temperatures and create weather patterns. Ocean currents distribute heat around the planet, affecting climate in different regions.

Answer 16:

There are different counts of continents because they can be grouped in various ways depending on geographical, cultural, and historical perspectives:

1. Four continents model: Africa-Eurasia, America, Antarctica, and Australia are considered when landmasses are grouped together.

2. Five continents model: This includes Africa, America, Antarctica, Australia, and Eurasia (Europe and Asia combined).

3. Six continents model: Separates North and South America but keeps Eurasia combined.

4. Seven continents model: The most widely used, which lists Africa, Antarctica, Asia, Australia, Europe, North America, and South America separately.

The variation exists because some continents like Europe and Asia form a single landmass (Eurasia), and North and South America are connected, allowing them to be counted as either one or two continents.

Answer 17:

The Indian Ocean Tsunami Warning System is an international collaborative system designed to detect tsunamis before they hit coastal areas and provide early warnings to potentially affected regions.

Importance:

1. It helps save lives by providing advance warning to coastal populations, giving them time to evacuate to safer areas

2. Many countries including India contribute to and benefit from this system

3. The system was established after the devastating 2004 tsunami that killed more than two lakh people across 14 countries

4. Early detection allows authorities to take protective measures for both people and property

5. It represents international cooperation for disaster management and public safety in the Indian Ocean region

SECTION D - Answer to Long Answer Question

Answer 18:

Oceans impact human life in numerous ways, both positive and negative:

Positive Impacts:

1. Climate and Rainfall: Oceans provide moisture for rainfall through the water cycle, which is essential for agriculture and freshwater availability. The monsoon rains in India originate from the ocean.

2. Oxygen Supply: Marine plants produce more than half of Earth's oxygen, making oceans vital for breathing and life support.

3. Food Source: Oceans provide fish and seafood, which is a major source of protein for millions of people worldwide.

4. Transportation and Trade: From ancient times, people have used oceans for migration, trade, and commerce. Most international trade still happens through sea routes.

5. Cultural Impact: Oceans have deeply influenced coastal cultures, inspiring legends, art, literature, and spiritual traditions across civilizations.

6. Economic Resources: Oceans provide minerals, oil, and other resources that support economies.

Negative Impacts:

1. Natural Disasters: Oceans can generate destructive events like tsunamis, cyclones, and storms that cause loss of life and property damage.

2. Pollution Effects: Human activities pollute oceans with plastic waste and other pollutants, which affects marine ecosystems and can harm human health through the food chain.

3. Climate Change: Changes in ocean temperatures can lead to extreme weather events and rising sea levels, threatening coastal communities.

Conclusion: While oceans are essential for human survival and development, we must protect them from pollution and overexploitation to ensure their benefits continue for future generations.

SECTION E - Answers to Case Study Based Questions

Answer 19:

(i) What caused the 2004 tsunami?
The 2004 tsunami was caused by a powerful underwater earthquake off the coast of Indonesia. This earthquake triggered the massive tsunami waves that traveled across the Indian Ocean.

(ii) Which regions of India were most affected by this tsunami?
The Andaman and Nicobar Islands and the coastal regions of Tamil Nadu and Kerala were most severely affected by the 2004 tsunami in India.

(iii) Why do tsunami waves become more dangerous as they approach the coast?
As tsunami waves travel across the deep ocean, they move very fast but are relatively small in height. When they reach shallow coastal waters, their speed decreases but their height increases dramatically (up to 30 meters or more), making them extremely dangerous and destructive.

(iv) What positive outcome resulted from this disaster?
The positive outcome was the establishment of better early warning systems in the Indian Ocean region, particularly the Indian Ocean Tsunami Warning System, which helps protect lives by providing advance warning of future tsunamis.

Answer 20:

(i) When did India's Antarctica Programme begin?
India's Antarctica Programme began in 1981, marking the start of India's exploration and research activities in Antarctica.

(ii) How much of Earth's freshwater is stored in Antarctica's ice?

About 70% of Earth's freshwater is stored in Antarctica's ice. Despite being frozen and not directly usable, this represents the majority of our planet's freshwater resources.

(iii) Name any two research stations established by India in Antarctica.
Any two of the following:
1. Dakshin Gangotri (established in 1983)
2. Maitri (established in 1989)
3. Bharati (established in 2012)

(iv) Why is studying Antarctica important for understanding global climate?
Studying Antarctica is important for understanding global climate because Antarctica's ice and environment significantly affect global climate patterns. Changes in Antarctica's ice sheets can influence sea levels and ocean currents worldwide. Research on Antarctica helps scientists understand climate change, atmospheric conditions, and how Earth's climate system works as a whole.
